



Environmental Protection Department



A one-thousand-cubic-feet-per-minute high-efficiency particulate air (HEPA) filter is prepared for treatment. The final product will be suitable for in-ground disposal.



Technicians install an electrode into a ground water well for the electro-osmosis project.



An Operations and Regulatory Affairs Division technologist collects a filter from an air particulate sampler at one of the Laboratory's nearly three dozen air-sampling locations.



Chemtrack inventory technician conducts the annual site-wide inventory.



Technicians activate the Environmental Restoration Division's Catalytic Reductive Dehalogenation treatment unit. The unit reduces solvents in the contaminated groundwater to non-toxic ethene, then the treated groundwater is returned to the subsurface to allow remaining tritium contamination to decay naturally.



The "labpack" team verifies waste chemical information and repackages items for compatibility and hazard class. Training, engineering controls, and appropriate protective equipment help ensure operator safety.

About the Environmental Protection Department

The Environmental Protection Department (EPD) is the lead organization for operational environmental support at Lawrence Livermore National Laboratory (LLNL). We are responsible for environmental monitoring, regulatory compliance, groundwater cleanup, environmental restoration, and radioactive and hazardous waste management.

LLNL's Environmental Policy

LLNL is committed to providing responsible stewardship of the environmental resources in our care. Environmental stewardship is integrated into our strategic planning and decision-making processes and into the management of our work activities through the Integrated Safety Management System.

In support of this policy, LLNL commits to:

- Work to continuously improve the efficient and effective performance of our environmental management system.
- Comply with applicable environmental laws and regulations.
- Incorporate pollution prevention, waste minimization, and resource conservation into our planning and decision-making processes.
- Ensure that interactions with our regulators, the DOE, and our community are based on integrity, openness, and adherence to national security requirements.
- Establish appropriate environmental objectives and performance indicators to guide these efforts and measure our progress.

EPD's Vision

Our vision is to develop and promote a more state-of-the-art environmental program for the Laboratory with the resources that are available. To achieve our vision, we must manage what we have more effectively, better utilize the resources of the Laboratory that are available to us, and generate new funding and resources by expanding existing Department of Energy (DOE) programs and developing new DOE programs through Work for Others agreements. A key part of our vision is to establish a full partnership with all elements of LLNL so that we all work together to meet the national laboratory mission and contribute solutions to key environmental issues.

One of our continuing challenges is to clean up the past contamination at LLNL sites effectively until those sites meet environmental standards. At the same time, we ensure that current projects associated with Laboratory programs meet all applicable environmental regulations and do not adversely affect the surrounding environment, the community, and Laboratory workers. Our efforts include carefully monitoring all chemicals used at the Laboratory to ensure that they are handled and disposed of properly. Our program is responsible for instituting state-of-the-art environmental practices to ensure that LLNL continues to protect the environment.

To meet the challenges, EPD continues to develop expertise in the areas of pollution prevention, waste minimization and management, environmental restoration, and environmental monitoring. Our ultimate goals are to share our expertise nationally with government and industry, to contribute to the nationwide effort to clean up the environment, and to better manage our compliance with environmental regulations. Environmental regulation is a complex and evolving issue because requirements frequently change, as do the policies and practices that are adopted within an organization to meet them. In response to the challenge, we have implemented a risk-based compliance approach to ensure that the intent of environmental laws and standards are always met.

Our Mission and Scope

Our overall EPD mission is to protect the Laboratory, to protect and restore the environment, and to contribute to the Laboratory's national security mission. Key to our mission is our emphasis on providing good customer support to the institution and maintaining excellent working relations with our own regulatory agencies. This means addressing regulatory, scientific, and technical issues that help the country with as much leverage as possible and that are appropriate for a national laboratory to undertake. As part of a broader national laboratory mission, we develop methods and implement technologies that allow for more effective waste treatment and decontamination, more cost-effective remediation and monitoring, better environmental monitoring techniques, and related achievements in the area of environmental protection. Another part of our mission is expanding our support to the DOE and other federal and state agencies through Work for Others agreements where we have unique technical expertise. Examples include helping the University of California (UC), the California Department of Toxic Substances Control (DTSC), the U.S. Environmental Protection Agency (EPA), the Nuclear Regulatory Commission (NRC), and the U.S. Department of Defense (DOD) on environmental issues. We are also working with the Russians and former Soviet states through the State Department's International Science and Technology Center (ISTC) Program, and are working with first-line responders on various hazardous materials (Hazmat) issues related to decontamination and restoration in support of Homeland Security.

In support of the EPD mission, our Department receives most of its direct funding from the DOE Environmental Restoration and Waste Management Programs, which provide about 70% of the Department's budget. This funding supports our Livermore Site and Site 300 groundwater restoration Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) cleanup activities as well as the handling and disposition of LLNL's hazardous and radioactive wastes. About 5% of our current operating budget supports various Work for Others sponsors. The remaining budget is provided by the Laboratory's indirect (overhead) funds. The Department, in turn, allocates its funds to support the following environmental activities:

- Assisting LLNL programs to develop environmentally sound practices in their day-to-day tasks. Such practices include:
 - Conducting environmental evaluations and addressing requirements under the National Environmental Policy Act (NEPA), California Environmental Quality Act (CEQA), the Endangered Species Act (ESA), and related federal and state requirements.
 - Identifying and developing methods to monitor, prevent, reduce, and clean up air emissions, wastewater discharges, and hazardous wastes.
 - Obtaining permits or exemptions for air, water, wastewater, and hazardous waste activities.
 - Developing and implementing pollution prevention and abatement strategies.
- Ensuring environmental compliance through environmental monitoring, risk assessment, and analysis of LLNL sites. We evaluate the impact of ongoing LLNL operations on the surrounding environment by sample collection, analysis, data reduction, and simulation modeling methods for water and air.
- Developing and conducting cost-effective environmental restoration and remediation, primarily to support the ongoing CERCLA cleanup activities at our two sites.
- Designing and applying appropriate, cost-effective treatment technologies to manage radioactive, hazardous, and mixed waste streams. As part of this effort, LLNL maintains and operates several Resource Conservation and Recovery Act (RCRA)-permitted nuclear facilities.
- Decommissioning and demolition (D&D) of radiological and nuclear facilities.

To carry out the EPD mission, we have developed an integrated, multidisciplinary, risk-based evaluation approach. By combining expertise in the scientific, engineering, technical, and management fields, we provide a comprehensive, balanced range of resources and disciplines to address environmental issues, identify best management practices, solve environmental problems, and prevent further environmental damage. Our experts provide quality assurance and environmental education, ensure regulatory compliance, and facilitate community relations and public

participation. The EPD also joins with other national laboratories, LLNL programs, the University of California, and the private sector to work on environmental projects.

EDP relies on commercial laboratories to generate a large percentage of the analytical data that are the basis for many decisions. Such data are used for performance monitoring of various environmental waste-management, restoration, and permitting activities in support of LLNL programs. The EPD Quality Assurance Program was part of the initial development of the DOE Consolidated Auditing program (DOECAP), which is the vendor-qualification process used to approve commercial analytical laboratories for use. We serve as a voting member of the DOECAP Steering Committee and function as qualified lead auditors.

The EPD consists of three divisions and several Department-level activities, which are identified in **Table 1**. Each division has a uniquely defined role in the Laboratory's pursuit of environmental achievement and compliance.

Table 1. Department-level activities and three divisions of the Environmental Protection Department.

Environmental Protection Department		
Departmental-Level Activities		
<ul style="list-style-type: none"> • Institutional Environmental Training • Environmental Emergency Management 		<ul style="list-style-type: none"> • Environmental Assurance • Decommissioning and Demolition Activities
EPD Divisions		
Environmental Restoration Division	Radioactive and Hazardous Waste Management Division	Operations and Regulatory Affairs Division
Environmental Engineering Hydrogeology Environmental Chemistry and Biology Information Systems and Management ----- Livermore Restoration Project Site 300 Restoration Project	Nuclear Facilities, Safety, and Compliance Information Management Storage and Disposal Waste Generator Services Waste Treatment ----- Legacy Waste Program	ChemTrack Operations Environmental Evaluations Environmental Operations Permits and Regulatory Affairs Terrestrial and Atmospheric Monitoring and Modeling Water Guidance and Monitoring